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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/261,080	03/02/1999	KARL-HEINZ SCHUSTER	Z-98005.5.US	7285

7590 11/10/2003

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EXAMINER

FULLER, RODNEY EVAN

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 11/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/261,080	SCHUSTER ET AL.	
	Examiner	Art Unit	
	Rodney E Fuller	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-10,15,16 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-10,15,16 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. In response to applicant's Amendment, dated August 18, 2003, the examiner acknowledges the cancellation of claims 1-7, 11-14, 17 and 18. Claims 8-10, 15, 16 and 19 are pending.
2. Regarding the 35 U.S.C. 102(b) rejection of claims 15 and 16 as being anticipated by Kubota, et al. (US 5,370,951), the applicant makes the argument that claim 15 recites a pellicle consisting of fluoride crystal, which is more restrictive than "comprising," and implies that the "body of the pellicle is made of fluoride crystal." Further, the applicant makes the argument that Kubota discloses a pellicle composed of different layers, one of which may be MgF₂." The examiner has considered the applicant's arguments and withdraws the rejection of claims 15 and 16. However, the applicant's admitted prior art anticipates the claims. (See *Claim Rejections - 35 USC § 102* section below)
3. Regarding the 35 U.S.C. 103(a) rejection of claim 8, 9 and 10, the applicant makes the argument the prior art does not recite the feature "in which the illumination system provides radially polarized light." (emphasis added) The examiner has considered the applicant's argument and withdraws the rejection. However, Kamon (US 5,436,761) makes up for this deficiency.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Craighead, et al. (GB 2 139 781) in view of Szarnes (US 5,590,148) and Kamon (US 5,436,761)

Regarding claims 8 and 9, Craighead (GB 2 139 781) (admitted prior art) discloses “a reticle with magnesium fluoride as a support material” and “a reticle with support material of transparent optically uniaxial crystal.” (See Specification, page 1, lines 11-14) However, Craighead (GB 2 139 781) does not specifically disclose wherein “the principal axis of said crystal is substantially perpendicular to the surface of said reticle.” Szarnes (US 5,590,148) discloses (column 16, lines 23-35) that: “In all designs employing uniaxial crystal, the two preferred orientations of the optical c-axis are the ones ...” “in which the c-axis lies in the plane of the crystal, or the c-axis possesses a projection onto the plane of incidence which is perpendicular to the surface of the crystal.” Hence, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ito (US 5,866,280) by wherein “the principal axis of said crystal is substantially perpendicular to the surface of said reticle,” since it has been held to be within the general skill of a worker in the art to select a known material, or orientation of material, on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

A further difference, between Craighead and the claims, is wherein the “illumination system provides a radially polarized light.” However, the use of radially polarized light in a projection exposure apparatus is routine in the art as is evident from the teaching of Kamon (US 5,436,761) (see column 4, line 19). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify modified Craighead by including an illumination system that produces radially polarized light. The ordinary artisan would have been motivated to modify modified Craighead in the manner described above “to provide a projection exposure apparatus preventing deterioration in the resist pattern accuracy due to a standing light wave” (column 1, lines 54-60, Kamon).

6. Claims 10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Craighead, et al. (GB 2 139 781) in view of Szarmes (US 5,590,148) and Kamon (US 5,436,761) as applied to claims 8 and 9 above, and further in view of Ashida (US 6,153,877).

A further difference between modified Craighead (GB 2 139 781) and the claimed invention is “a cooling device.” However, the use of a “cooling device” in a photolithography system is routine in the art as is evident from the teaching of Ashida (US 6,153,877) (see abstract). Thus it would have been obvious to one of ordinary skill at the time the invention was made to further modify Ito (US 5,866,280) by including a “cooling device.” The ordinary artisan would have been motivated to further modify Ito (US 5,866,280) in the manner described above for at least the purpose of improving the pattern position precision by stabilizing the temperature of the reticle as described by Ashida (US 6,153,877) in column 1, lines 29-40.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's admitted prior art (page 1, lines 11-14, specification) (German Patent DE 34 17 888) (British Patent document 21 39 781)

The applicant discloses that the prior art teaches a substrate that “consists of MgF_2 , or equally well of CaF_2 or diverse other fluorides.” As noted in the Advisory Action, mailed August 26, 2002, a pellicle is a thin diaphragm used for protection of a mask structure. Therefore, any thin layer or plate made of fluoride crystal would read on claim 15. Further, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Oshida, et al. (US 5,677,755) teaches the use of an illumination system that provides radially polarized light.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney E Fuller whose telephone number is 703-306-5641. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-1436. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Rodney E Fuller
Primary Examiner
Art Unit 2851

A handwritten signature in black ink, appearing to read 'R. E. Fuller', is written over the printed name and title.

October 28, 2003